

Navy Advancement Center

Web site: <http://www.advancement.cnet.navy.mil>

Advancement Handbook for Sonar Technician (Surface)

This Advancement Handbook was last revised on: May 2001

PREFACE

The purpose of the Advancement Handbook is to help you focus your preparation for Navywide advancement-in-rating examinations. The bibliographies (BIBs) together with this handbook form a comprehensive examination study package. Since this handbook provides skill and knowledge components for each paygrade of the Sonar Technician (Surface) rating, it helps you concentrate your study on those areas that may be tested. This feature will help you get the most out of your study time.

Each page in Parts 1 through 4 of this Advancement Handbook presents general skill areas, specific skill areas, the knowledge factors associated with each skill area, the pertinent references that address each skill, and the subject areas that may be covered on the examination. The skill statements describe the skills you are expected to perform for each paygrade. The skill statements are cumulative; that is, you are responsible for the skills for the paygrade you are competing for, your present paygrade, and all paygrades below.

Although this handbook is very comprehensive, it cannot cover all the tasks performed in the rating. As a result, the advancement examinations may contain questions more detailed than described in the “*Exam Expectations*” section of the skill areas.

Remember that advancement competition is keen, so your keys to advancement include not only comprehensive advancement examination study but also sustained superior performance.

Prepared by
Navy Advancement Center Department,
Naval Education and Training Professional
Development and Technology Center

CONTENTS

| PARTS | | PAGE |
|------------|--|------|
| 1 | Advancement Handbook for Sonar Technician (Surface) Third Class | 1-1 |
| 2 | Advancement Handbook for Sonar Technician (Surface) Second Class..... | 2-1 |
| 3 | Advancement Handbook for Sonar Technician (Surface) First Class | 3-1 |
| 4 | Advancement Handbook for Sonar Technician (Surface) Chief | 4-1 |
| Appendix 1 | References Used in This Advancement Handbook..... | A-1 |

Part 1

Advancement Handbook for STG3

Advancement Handbook for STG3

| | |
|--|---|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Perform pre-underway operational checks and identify normal/abnormal conditions |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Perform system operational checks • Perform sonar equipment and space checks • Identify normal/abnormal conditions • Interpret computerized alerting systems data • Secure sonar systems and UBFCS/ASWCS for shock |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Combat Systems Operational Sequencing System Manuals (CSOSS)</i> • Applicable Operation Guidelines for AN/SQQ-89(V) • <i>Operation/Maintenance Instructions for Sonar Set AN/SQS-56</i> (SE315-DT-MMO-010), Chs 1-3 • <i>Organizational Level Maintenance for Sonar Detecting Ranging Set AN/SQS-53D(V)</i>, (SE 313-XX-XXX-XX(C)) Chs 1-3 • <i>System Operation/Maintenance AN/SQS-53B</i>, (SE 313-XX-XXX-XX(C)) Chs 1-3 • <i>Sonar Detecting-Ranging Set AN/SQS-53C(V)</i>, (SE 313-XX-XXX-XX(C)) Chs 1-3 • <i>System Manuals for Sonar Receiving Set AN/SQR-19(V)</i>, (SE320-XX-XXX-XXX) Chs 1-3 • <i>Sonar Signal Processing System AN/SQQ-28(V)</i>, (SE314-GV-MMA-010) Chs 1-3 • <i>System Manuals for Underwater Fire Control System MK116 MOD</i> (applicable) (ASWCS) (SW181-XX-XXX-XXX) Chs 1-3 • <i>Surface Ship ASW System with Control Panel MK 309</i> Code Ident 10001 OP 4407 |

| | |
|---|--|
| | <ul style="list-style-type: none"> • <i>AN/SQQ-89(V) Surface Antisubmarine Warfare Combat System (SE394-AD-MMA-030/SQQ-89(V))</i> • Planned Maintenance System (PMS) applicable MRC's |
| <p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p> | <p>You can expect questions about system variants in ship class, equipment within each system, power on/off procedures, knobology and pre-underway checks. In addition, you will be given symptoms and/or indications of system status that will require your analysis to determine if a fault condition exists.</p> |

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Classify sonar contacts on active and passive systems utilizing hull mounted, fixed/towed array sonar systems |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Interpret active sonar echo characteristics • Detect submerged objects (mines, bottom contours, etc.) • Identify contact operating characteristics and obtain turn counts or shaft RPM's • Identify contact maneuvers • Identify surfaced and submerged transient noises • Identify acoustic source relationships (mechanical, harmonic, electrical, and speed) |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • Applicable AN/SQQ-89(V) Operational Guidelines • ONI ACINT Newsletters • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>Principles of LOFAR Gram Analysis</i> (NWP 1-10.2 Vol 1 (REV A) and Vol 2 (REV A)) • <i>Passive Acoustic Classification Reference Manual</i> (NWP 1-10.22) • <i>Signature Catalog: CIS Diesel and Nuclear Submarines</i> (NWP 1-10.26) • <i>Foreign Submarine DATA Handbook</i> (NWP 1-10.21) • <i>U.S. Nuclear Submarine DATA Handbook</i> (NWP 1-10.27) • <i>Integrated Undersea Surveillance System Operations</i> (NAVEDTRA 14309) • <i>Acoustic Characteristics of Russian Surface Ships</i> (ONI-1259-050-98) • <i>Acoustic Characteristics of Diesel Submarines (Less Russia)</i> (DST 1220S-092-XX) |

| | |
|---|---|
| | <ul style="list-style-type: none"> • <i>Acoustic Characteristics of Russian Type 1 Through Type 4 Diesel Submarines</i> (DST 1220S-646-XX) • <i>Acoustic Characteristics of Russian Type 2 and Type 3 Nuclear Submarines</i> (DST 1220S-461-XX) • <i>Acoustic Characteristics of Russian Type 6 and Type 7 Nuclear Submarines</i> (DST 1220S-465-XX) • <i>In-Water Acoustic Characteristics of Russian Missiles, Countermeasures, and Torpedoes</i> (DST 1260S-084-XX) |
| <p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p> | <p>You can expect questions about the following areas: active echo characteristics, small object avoidance (mines), bottom contour (pinnacles, slopes), LOFAR terminology, application of basic LOFAR formulas, as well as types and operating characteristics of all submarines and surface ships.</p> |

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Compute active/passive figure of merit and active/passive sonar ranges. Conduct XBT/XSV drops and log information. |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Calculate sonar performance parameters (source levels (Ls), noise levels (Ln), etc.) • Determine propagation paths of underwater sound • Determine best depth for contact to avoid detection • Calculate probability of detection and counterdetection ranges • Launch expendable bathythermographs (XBTs) • Analyze XBT data • Evaluate sonar performance (manual range predictions, SIMAS) • Identify environmental effects on acoustic displays • Identify ocean environmental changes |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • Applicable AN/SQQ-89(V) Operational Guidelines • <i>Fleet Oceanographic and Acoustic Reference Manual</i> (RP 33) • <i>United States Navy Meteorological and Oceanographic Support System Manual</i> (NAVMETOCOMINST 3140.1) • BT log (CNMOC 3167/2) • <i>Bathythermograph / Sound Velocimeter</i> AN/BQH-7A (SE365-BA-MMO-010/BQH-7A) • <i>Bathythermograph Set</i> AN/SSQ-(56, 56A, 60, 61, and 61A) (SE365-AA-MMM-010) • <i>Operator's Manual for AN/UYQ-25A(V) Data Processing System</i> (SE394-C2-OPI-XX(SIMAS)) |

| | |
|--|--|
| | <ul style="list-style-type: none"> • <i>Surface Ship Acoustic Prediction Systems and Tactics</i> (NWP 3-21.34) • <i>Allied Antisubmarine Warfare Manual</i> ATP 28(A), Chs 1 and 2, ANNEX A, B |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about the following areas: sound energy losses through spherical and cylindrical spreading, dimensions of a velocity profile, various ray paths which sound energy may take from source to detector, and components of the active and passive sonar equation. Also, questions concerning environmental effects (fronts, currents, eddies, etc.), interpretation of BT data and interference patterns will be asked. |

Advancement Handbook for STG3

| | |
|--|---|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Track contacts on active/passive systems utilizing both towed and fixed array sonar systems |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Determine contact bearing • Mark and interpret contact information • Track contacts and report to fire control • Convert between true and relative bearings • Determine contact bearing, ranges, geographic position and aspect • Compute angle on the bow (AOB), course and speed, and closest point of approach (CPA) • Perform target motion analysis (TMA) • Plot contacts |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • Applicable System Operating Guidelines • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>Surface Ship Passive Localization and Target Motion Analysis</i> (NWP 3-21.51.3 Rev A, Chs 1,2,3, and 7) • <i>Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume II</i> (SURTOPS Vol II) • <i>Maneuvering Board Manual</i> (NV Pub 217) • <i>Target Motion Analysis (TMA) Techniques</i> (NWP 3-21.51.1) • <i>Integrated Undersea Surveillance System Operations</i> (NAVEDTRA 14309) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about contact tracking and interpreting contact data to identify bearing, range, maneuvers, speed/Doppler and false contacts. Additionally, questions will require you to convert between true and relative bearings, track contacts and provide data to Fire Control, collect weapons |

| | |
|--|---|
| | <p>firing data, resolve for bearing ambiguity, and solve problems relating to passive/active contact localization and target motion analysis (TMA). You will be required to describe basic reference information on charts used to locate or specify a position and how lines of bearing are developed and used in the IUSS system. You will also be required to identify types of charts used in the IUSS system, requirements, localization procedures when one or more sensors hold contact, localization procedures when using a maneuvering board, deduced reckoning, time-difference fixing, and Doppler plotting techniques.</p> |
|--|---|

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Conduct sonar searches on active/passive systems |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Conduct sonar searches on active and passive systems • Recommend wake or baffle clearing maneuvers • Recommend own ship course and speed changes • Detect acoustic contacts |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • Applicable System Operating Guidelines • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume II</i> (SURTOPS Vol II) • <i>Integrated Undersea Surveillance System Operations</i> (NAVEDTRA 14309) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about types of searches (arcs, baffle, beam, etc.) and operation of systems for optimum search (modes, menus, parameters, etc.). |

Advancement Handbook for STG3

| | |
|--|---|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Annotate acoustic displays, make sonar contact recordings, report and log sonar contacts |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Make acoustic data tape recordings • Collect acoustic intelligence data • Make contact reports • Log contact data |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>ACINT Collection Guide</i> (ONI-1259-001-00) • <i>Signal Data Recorder Reproducer Set AN/USH-32(V)</i> (SE314-GV-MMM-010) • Sonar Contact Log (OPNAV 3100/13) • Passive Narrowband Log (OPNAV 3100/905) • <i>Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume II</i> (SURTOPS Vol II) • <i>XXX Class Combat Systems Doctrine</i> (CNSL/CNSP INST C3516 SERIES) • <i>Integrated Undersea Surveillance System Operations</i> (NAVEDTRA 14309) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about annotating acoustic displays and procedures for recording contact data. Also, questions regarding contact reports and logging contact information will be asked. |

Advancement Handbook for STG3

| | |
|---|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Identify shipboard auxiliary systems, operation of systems, system parameters and normal/abnormal conditions |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Perform system initialization and shutdown • Perform operational checks • Make operator panel and remote panel settings • Obtain water depth soundings • Establish voice underwater communications) |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Combat Systems Operational Sequencing System Manuals</i> (CSOSS) • <i>On-Board Trainer</i> AN/SQQ-89(V)-T (NAVSEA S8000-AD-MMO-010/A10) • <i>Bathymograph / Sound Velocimeter</i> AN/BQH-7A (SE365-BA-MMO-010/BQH-7A) • <i>Bathymograph Set</i> AN/SSQ-(56, 56A, 60, 61, and 61A) (SE365-AA-MMM-010) • <i>Operator's Manual for</i> AN/UYQ-25A(V) <i>Data Processing System</i> (SE394-C2-OPI-XX(SIMAS)) • <i>Torpedo Countermeasures Transmitting Set</i> AN/SLQ-25/25A (SE-376-HA-MMA-010/020/030 and SE376-HO-MMA-010/C) • <i>Sonar Communication Set</i> AN/WQC-2A (NAVSEA 0967-LP-490-1640) • <i>Sonar Sounding Set</i> AN/UQN-4/4A <i>Fathometer</i> (SE362-DO-MMM-010) • <i>Sonar Communication Set</i> AN/WQC-6/WQC-6 (EC-1) (SE343-FO-MMO-010/C) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions | You can expect questions about power on/off procedures, operational checks, system parameters (modes, freq ranges, operating characteristics), and specific operating |

| | |
|------------|--|
| correctly: | capabilities and knobology. Also, you will be given symptoms and/or indications of system status that will require your analysis to determine if a fault condition exists. |
|------------|--|

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Monitor and interpret intelligence threat data products |
| <i>Knowledge</i> you should have to perform this skill: | Check intelligence threat data for contacts of interest |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • ONI ACINT Newsletters • <i>Maritime Reporting Procedures</i> (NWP 1-03.41) • <i>Integrated Undersea Surveillance System Coordination Procedures</i> (NWP 3-55.32.1) • <i>USMTF User Formats Electronic Documentation System</i> (OPNAV-P-942-1-86) • <i>Operational Specification for Over-the-Horizon Targeting Gold</i> (OS-OTG) • <i>Integrated Undersea Surveillance System Operations</i> (NAVEDTRA 14309) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about types of intel products offered and interpretation of tactical messages. |

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Rig sonobuoys/mini mobile targets for deployment |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Rig and deploy sonobuoys • Launch mini mobile targets |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Technical Manual Sonobuoys</i> (NAVAIR 28-SSQ-500-1) • <i>Mobile Target MK 38 MOD 5</i> (SW581-A5-OPI-010/MK38-5) • <i>Expendable Mobile ASW Training Target (EMATT) MK 39 MOD 0</i> (SW581-DO-PRO-010/EMATT) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about types, characteristics, and launch procedures for sonobuoys and mini mobile targets. |

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar System Maintenance |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Utilize general purpose test equipment to perform troubleshooting and maintenance on sonar equipment |
| <i>Knowledge</i> you should have to perform this skill: | Operate general purpose electronic test equipment |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <i>NEETS Module 16— Introduction to Test Equipment</i> (NAVEDTRA 14188) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about types, operating characteristics, and equipment settings for general-purpose electronic test equipment. |

Advancement Handbook for STG3

| | |
|--|---|
| General STG <i>Skill Area</i> | Sonar System Maintenance |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Troubleshoot, maintain, and repair shipboard sonar detecting /ranging systems to lowest replaceable unit (LRU); adjust or calibrate as needed to repair system to a fully operational condition |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Clean and inspect sonar detecting/ranging equipment • Adjust and calibrate sonar ranging/detecting equipment • Troubleshoot and replace components of sonar ranging/detecting equipment • Repair interfaces between equipment • Perform active sonar transmitter source level tests • Perform bearing and range accuracy tests • Perform sonar system consolidated operability tests (SCOT) • Replace electrostatic discharge (ESD) sensitive components |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Operation and Maintenance Manuals for Sonar Detecting-Ranging Set AN/SQS-53B(V)</i> (SE 313-XX-XXX-XX(C)) • <i>System Technical Manuals for Sonar Detecting Ranging Set AN/SQS-53C(V)</i> (SE 313-XX-XXX-XX(C)) • <i>Organizational Level Maintenance for Sonar Detecting Ranging Set AN/SQS-53D(V)</i> (SE 313-XX-XXX-XX(C)) • <i>Operation and Maintenance Instructions for AN/SQS-56 Sonar Set</i> (SE315-DT-MMO-010) • <i>Sonar Signal Processing System AN/SQQ-28(V) Operation and Maintenance Manuals</i> (SE314-GV-MMA-010) |

| | |
|---|--|
| | <ul style="list-style-type: none"> • <i>Sonar Receiving Set AN/SQR-19(V) Operation and Maintenance Manuals (SE320-XX-XXX-XXX)</i> • <i>Sensors, Integrated AN/SQR-19B(V) and AN/SQQ-28(V) Operation and Maintenance Manuals .</i> • <i>System Manuals for Underwater Fire Control System MK116 MOD (applicable) (ASWCS), (SW-181-XX-XXX-XXX) Chs 5-10</i> • <i>Surface Ship ASW System with Control Panel MK 309 (CODE IDENT 10001 OP 4407)</i> • NEETS Modules 1-9, 12-16, 19-24 (NAVEDTRA's 14173-14181, 14184-14188, 14191-14196) • Planned Maintenance System (PMS) applicable MRC's |
| <p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p> | <p>You can expect questions about sonar detecting/ranging equipment maintenance procedures. You will be given indications of faulty conditions that require you to select the correct problem or resolution to the problem. Also, questions relating to the use of BITE, PM/FL and sonar system fault summaries; receiver sensitivity, range and bearing accuracy tests; SCOT; and ESD components will be asked.</p> |

Advancement Handbook for STG3

| | |
|--|---|
| General STG <i>Skill Area</i> | Sonar System Maintenance |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Clean and inspect auxiliary equipment and degauss magnetic tape recorder heads and tapes |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Degauss magnetic tape recorder heads and tapes • Clean and inspect sonar acoustic communications equipment • Clean and inspect sonar bathythermographic equipment • Clean and inspect sonar classification/data gathering equipment • Clean and inspect towed CM equipment • Clean and inspect sonar depth sounding equipment |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>On-Board Trainer AN/SQQ-89(V)-T</i> (NAVSEA S8000-AD-MMO-010/A10) • <i>Bathythermograph/Sound Velocimeter AN/BQH-7A</i> (SE365-BA-MMO-010/BQH-7A) • <i>Bathythermograph Set AN/SSQ-(56, 56A, 60, 61, and 61A)</i> (SE365-AA-MMM-010) • <i>Operator's Manual for AN/UYQ-25A(V) Data Processing System</i> (SE394-C2-OPI-XX(SIMAS)) • <i>Torpedo Countermeasures Transmitting Set AN/SLQ-25/25A</i> (SE376-HO-MMA-010/C and SE376-HA-MMA-010/020/030) • <i>Sonar Communication Set AN/WQC-2A</i> (NAVSEA 0967-LP-490-1640) • <i>Sonar Sounding Set AN/UQN-4/4A Fathometer</i> (SE362-DO-MMM-010) • <i>Sonar Communication Set AN/WQC-6/WQC-6 (EC1)</i> (SE343-FO-MMO-010/C) • <i>Signal Data Recorder Reproducer Set AN/USH-32(V)</i> (SE314-GV-MMM-010) |

| | |
|--|--|
| | <ul style="list-style-type: none"> • <i>Digital Magnetic Tape Recorder Reproducer Set RD-358A(V)</i> (SE641-AE-MMO-010) • <i>ACINT Collection Guide</i> (ONI-1259-001-00) • Planned Maintenance System (PMS) applicable MRC's |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on procedures for degaussing tape heads and tapes, as well as procedures for cleaning and inspecting auxiliary equipment and identification of abnormal conditions. |

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar System Maintenance |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Maintain towed systems |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Inspect towed arrays • Fill towed arrays • Replace towed array sections • Clean and inspect towed electric and electronic systems • Adjust towed sensor electric and electronic systems • Troubleshoot towed sensor electric and electronic systems • Replace components of towed sensor electric and electronic systems |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • Planned Maintenance System (PMS) applicable MRC's • <i>Torpedo Countermeasures Transmitting Set AN/SLQ-25/25A</i> (SE376-HO-MMA-010/C and SE376-HA-MMA-010/020/030) • <i>Towed Array Handling and Stowage Group OK-410(V)</i> (SG813-CL-MMO-010/020) • <i>Sonar Receiving Set AN/SQR-19(V) Operation and Maintenance Manuals</i> (SE320-XX-XXX-XXX) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on the description of the towed array and replace and fill procedures. You can also expect questions on towed sensor electric and electronic system troubleshooting, component replacement, adjustments, and cleaning and inspection procedures. |

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar System Maintenance |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Maintain sonar computers and peripheral equipment, to include sonar desktops (SIMAS, etc.) |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Troubleshoot sonar computers • Replace sonar computer components • Troubleshoot sonar computer peripheral equipment • Replace sonar computer peripheral equipment components |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • Planned Maintenance System (PMS) applicable MRC's • <i>Operation and Maintenance Manuals for Sonar Detecting-Ranging Set AN/SQS-53B(V)</i> (SE 313-XX-XXX-XX(C)), Chs 1-3 • <i>System Technical Manuals for Sonar Detecting Ranging Set AN/SQS-53C(V)</i> • <i>Organizational Level Maintenance for Sonar Detecting Ranging Set AN/SQS-53D(V)</i> (SE 313-XX-XXX-XX(C)), Chs 1-3 • <i>Operation/Maintenance Instructions for Sonar Set AN/SQS-56</i> (SE315-DT-MMO-010), Chs 1-3 • <i>Sonar Signal Processing System AN/SQQ-28(V)</i>, (SE314-GV-MMA-010) Chs 1-3 • <i>System Manuals for Sonar Receiving Set AN/SQR-19(V)</i>, (SE320-XX-XXX-XXX) Chs 1-3 • <i>Sensors, Integrated AN/SQR-19B(V) and AN/SQQ-28(V) Operation and Maintenance Manuals</i> (SE394-AD-MMO-040) • <i>System Manuals for Underwater Fire Control System MK116 MOD</i> (applicable) (ASWCS) (SW181-XX-XXX-XXX) Chs 1-3 • <i>Operator's Manual for AN/UYQ-25A(V) Data Processing System</i> (SE394-C2-OPI-XX(SIMAS)) |

| | |
|---|--|
| <p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p> | <p>You can expect questions on procedures for cleaning and inspecting sonar and desktop computers, troubleshooting and component replacement for sonar and desktop computers, and computer diagnostics for sonar computers and peripheral equipment.</p> |
|---|--|

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar System Maintenance |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Maintain UWFCS/ASWCS and interfaces |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Test sonar to UFCS/ASWCS interfaces • Clean and inspect UFCS/ASWCS |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Surface Ship ASW System with Control Panel MK 309</i> (Code Ident 10001 OP 4407) • <i>System Manuals for Underwater Fire Control System MK116 MOD</i> (applicable) (ASWCS) (SW181-XX-XXX-XXX) Chs 1-3 • Planned Maintenance System (PMS) applicable MRC's |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on cleaning and inspection procedures for UFCS/ASWCS and testing the sonar to UFCS/ASWCS interfaces. |

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Mechanical Systems |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Operate and maintain towed arrays |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Deploy/retrieve towed arrays • Troubleshoot towed array handling/storage group • Clean, inspect, lubricate and adjust array handling storage group • Start up and test hydraulic pumps • Clean, inspect, lubricate, and adjust countermeasures handling equipment |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Torpedo Countermeasures Transmitting Set AN/SLQ-25/25A</i> (SE376-HO-MMA-010/C and SE376-HA-MMA-010/020/030) • <i>Towed Array Handling and Stowage Group OK-410(V)</i> (SG813-CL-MMO-010/020) • <i>Sonar Receiving Set AN/SQR-19(V) Operation and Maintenance Manuals</i> (SE320-XX-XXX-XXX) • Planned Maintenance System (PMS) applicable MRC's |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about deployment/retrieval procedures for towed arrays and countermeasures; maintenance, lubrication and adjustments to the countermeasures handling equipment and towed array handling and stowage group (TAHSG); and starting and testing procedures for hydraulic pumps. |

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Mechanical Systems |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Maintain sonar dome pressurization system |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Clean and inspect sonar dome pressurization systems • Adjust and align sonar dome pressurization components • Replace sonar dome pressurization system components • Prepare sonar dome for entry • Rig or unrig hydrophone test booms |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels</i> (S9165-AF-MMA-010/03481) • <i>Sonar Dome Rubber Window SDRW-1 (DDG-51 Class Vessels)</i> (S9165-AE-MMA-010) • <i>Sonar Dome Rubber Window SDRW-1 (DD 963, DDG-993, and CG-47 Class Vessels)</i> (S9165-AH-MMA-010) • Planned Maintenance System (PMS) applicable MRC's |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about operating the dome pressurization system, functions of valves, preparing the dome for entry and the maintenance performed on the sonar dome watertight doors. You can also expect questions on the rigging and unrigging of the hydrophone test booms. |

Advancement Handbook for STG3

| | |
|--|---|
| General STG <i>Skill Area</i> | Mechanical Systems |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Maintain electronic cooling systems (ECS) |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Line up electronic cooling system (ECS) valves • Test ECS flow rate switches, flowmeters, and indicators • Inspect and change ECS micron filters • Clean and inspect heat exchangers • Clean, inspect, and change equipment air filters |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • Planned Maintenance System (PMS) applicable MRC's • <i>Aegis Electronic Equipment Water Cooler HD 1074/SQS</i> (S9536-AF-AEG-010/HD-1074/SQS) • Applicable ships Electronic Cooling System (ECS) Maintenance/Operations Manual |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about alignment procedures for ECS, functions of valves, system parameters, cleaning and replacement of filters and operation of heat exchangers. |

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Mechanical Systems |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Maintain paper drives |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Change paper drive recorder helices and styli • Change paper drive recorder rolls |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>On-Board Trainer AN/SQQ-89(V)-T</i> • <i>Bathymograph/Sound Velocimeter AN/BQH-7A</i> (SE365-BA-MMO-010/BQH-7A) • <i>Bathymograph Set AN/SSQ-(56, 56A, 60, 61, and 61A)</i> (SE365-AA-MMM-010) • <i>Sonar Sounding Set AN/UQN-4/4A Fathometer</i> (SE362-DO-MMM-010) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about replacement of helices, styli, and recorder paper rolls. |

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Software Maintenance |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Maintain and operate digital data storage devices and tactical system hardware/software |
| <i>Knowledge</i> you should have to perform this skill: | Perform tactical system program initializations and recoveries |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Operation and Maintenance Manuals for Sonar Detecting-Ranging Set AN/SQS-53B(V)</i> (SE 313-XX-XXX-XX(C)), Chs 1-3 • <i>System Technical Manuals for Sonar Detecting Ranging Set AN/SQS-53C(V)</i> • <i>Organizational Level Maintenance for Sonar Detecting Ranging Set AN/SQS-53D(V)</i> (SE 313-XX-XXX-XX(C)), Chs 1-3 • <i>Operation/Maintenance Instructions for Sonar Set AN/SQS-56</i> (SE315-DT-MMO-010), Chs 1-3 • <i>Sonar Signal Processing System AN/SQQ-28(V)</i>, (SE314-GV-MMA-010) Chs 1-3 • <i>System Manuals for Sonar Receiving Set AN/SQR-19(V)</i>, (SE320-XX-XXX-XXX) Chs 1-3 • <i>Sensors, Integrated AN/SQR-19B(V) and AN/SQQ-28(V) Operation and Maintenance Manuals</i> (SE394-AD-MMO-040) • <i>System Manuals for Underwater Fire Control System MK116 MOD</i> (applicable) (ASWCS) (SW181-XX-XXX-XXX) Chs 1-3 • <i>Operator's Manual for AN/UYQ-25A(V) Data Processing System</i> (SE394-C2-OPI-XX(SIMAS)) • <i>Surface Ship ASW System with Control Panel MK 309</i> (Code Ident 10001 OP 4407) |

| | |
|--|---|
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about digital data read/write procedures, tactical system software and hardware recoveries, initializations, and updating tactical systems software libraries. |
|--|---|

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Technical Administration |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Update sonar operation and maintenance logs |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Update sonar logs • Document XBT data |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • Sonar Contact Log (OPNAV 3100/13) • BT log (CNMOC 3167/2) • Passive Narrowband Logs (OPNAV 3100/905) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about maintaining sonar operational logs and documenting XBT data. |

Advancement Handbook for STG3

| | |
|--|---|
| General STG <i>Skill Area</i> | Technical Administration |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Inventory sonobuoys |
| <i>Knowledge</i> you should have to perform this skill: | Inventory sonobuoys |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <i>Technical Manual Sonobuoys</i> (NAVAIR 28-SSQ-500-1) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions concerning the identification, inventory, use, and storage requirements for sonobuoys. |

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Technical Administration |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Inventory Maintenance Assistance Modules (MAMS) |
| <i>Knowledge</i> you should have to perform this skill: | Inventory MAMS |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <i>Afloat Supply Procedures</i> (NAVSUP Publication 485) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions concerning the identification, inventory, use, and storage requirements for MAMS. |

Advancement Handbook for STG3

| | |
|--|--|
| General STG <i>Skill Area</i> | Weapons Systems |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Perform torpedo handling evolutions |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Load and unload torpedo tubes • Perform torpedo handling during offload/onload evolutions |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Ammunition Afloat</i> (NAVSEA OP4) • <i>Firing Craft Procedures for Torpedo MK 46 MODs 1, 2, and 5 (Surface Vessel Torpedo Tubes)</i> (SW515-AO-PRO-020) • <i>Approved Handling Equipment for Weapons and Explosives</i> (NAVSEA OP 2173, Vols 1&2) • Planned Maintenance System (PMS) applicable MRC's • <i>Strikedown Lift Systems for DD963, DD 993, and CG Class</i> (SG420-AX-MMO-010) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about loading torpedo tubes; charging air flasks, davits and hoist gear for torpedo handling; and the cleanliness and preservation of weapon magazines, torpedo tubes, related spaces, and safety requirements. |

Part 2

Advancement Handbook for STG2

Advancement Handbook for STG2

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Perform actions of Sonar Supervisor |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Determine optimum sonar operating modes • Determine optimum sonar suite configuration • Compute search arcs from UFCS/ASWCS data • Assign priorities to contacts and identify confidence levels • Recommend sonar operating modes to bridge • Recommend tactical employment of sonar sensors |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • Applicable Ships AN/SQQ-89(V) Operating Guidelines • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>Surface Ship Antisubmarine Warfare (ASW) Principles</i> (NWP 3-21-3) • <i>XXX Class Combat Systems Doctrine</i> (CNSL/CNSP INST C3516 SERIES) • <i>XXX Class Tactical Manual</i> (NWP 3-20.6 SERIES) • <i>Allied Maritime Tactical Instructions and Procedures</i> (ATP 1 Vol, 1, Ch 9) • <i>Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual Volume II</i> (SURTOPS VOL II) • <i>Integrated Undersea Surveillance System Operations</i> (NAVEDTRA 14309) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about the responsibilities of the Sonar Supervisor/Watch Floor Supervisor. This will include, but is not limited to, optimum employment and mode selection, recommending search, assigning contact priorities and reduction of own ship's detectability. |

Advancement Handbook for STG2

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Classify sonar contacts on active and passive systems |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Classify acoustic signatures to platform and class • Identify evasion devices and acoustic jamming |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>Principles of LOFAR Gram Analysis</i> (NWP 1-10.2 Vol 1 (REV A) and Vol 2 (REV A)) • <i>Passive Acoustic Classification Reference Manual</i> (NWP 1-10.22) • <i>Signature Catalog: CIS Diesel and Nuclear Submarines</i> (NWP 1-10.26) • <i>Foreign Submarine Data Handbook</i> (NWP 1-10.21) • <i>U.S. Nuclear Submarine Data Handbook</i> (NWP 1-10.27) • <i>Acoustic Characteristics of Diesel Submarines (Less Russia)</i> (DST 1220S-092-XX) • <i>Acoustic Characteristics of Russian Type 1 Through Type 4 Diesel Submarines</i> (DST 1220S-646-XX) • <i>Acoustic Characteristics of Russian Type 2 and Type 3 Nuclear Submarines</i> (DST 1220S-461-XX) • <i>Acoustic Characteristics of Russian Type 6 and Type 7 Nuclear Submarines</i> (DST 1220S-465-XX) • <i>Acoustic Characteristics of Russian Surface Ships</i> (ONI-1259-050-98) |

| | |
|---|---|
| | <ul style="list-style-type: none"> • <i>In-Water Acoustic Characteristics of Russian Missiles, Countermeasures, and Torpedoes</i> (DST 1260S-084-XX) |
| <p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p> | <p>You can expect questions about classifying grams or word problems to contact type and class, as well as identifying evasion devices and acoustic jamming.</p> |

Advancement Handbook for STG2

| | |
|--|---|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Develop localization data, using available acoustic information |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Correlate multi-sensor data • Correlate LAMPS and UFCS/ASWCS contact data • Resolve for bearing ambiguity • Compute contact Doppler and range rates • Determine best area for contact to avoid detection |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Maneuvering Board Manual</i> (NV Pub 217) • <i>Allied Maritime Tactical Instructions and Procedures</i> (ATP 1, Vol 1, Ch 9) • <i>Surface Ship Passive Localization and Target Motion Analysis</i> (NWP 3-21.51.3 (Rev A), Chs 1,2,3, and 7) • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>SH60B/LAMPS MK III TACTICAL Manual</i> (NWP 3-22.5-SH60B) • Applicable ships AN/SQQ-89(V) Operating Guidelines |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about correlating multi-sensor data, and determining the best area for contact to avoid detection. |

Advancement Handbook for STG2

| | |
|--|---|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Utilize tactical oceanography principles |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Determine ambient limited and breakpoint speeds • Analyze oceanographic and meteorological data |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Fleet Oceanographic and Acoustic Reference Manual</i> (RP 33) • <i>Tactical Use of the Ocean Environment</i> (NWP 3-59.1) • <i>Surface Ship Antisubmarine Warfare (ASW) Principles</i> (NWP 3-21.3) • Applicable ships AN/SQQ-89(V) Operating Guidelines • <i>United States Navy Meteorological and Oceanographic Support System Manual</i> (NAVMETOCOMINST 3140.1) • <i>Surface Ship Acoustic Prediction Systems and Tactics</i> (NWP 3-21.34) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about ambient limited and breakpoint speeds and utilizing oceanographic and meteorological data. |

Advancement Handbook for STG2

| | |
|--|---|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Annotate acoustic displays and recordings |
| <i>Knowledge</i> you should have to perform this skill: | Annotate grams, charts and tape recordings |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>ACINT Collection Guide</i> (ONI-1259-001-00) • <i>Signal Data Recorder Reproducer Set AN/USH-32(V)</i> (SE314-GV-MMM-010) • <i>Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume II</i> (SURTOPS VOL II) • <i>XXX Class Combat Systems Doctrine</i> (CNSL/CNSP INST C3516 SERIES) • <i>Integrated Undersea Surveillance System Operations</i> (NAVEDTRA 14309) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about annotating acoustic displays and procedures for recording contact data. Also, questions regarding contact reports and logging contact information will be asked. |

Advancement Handbook for STG2

| | |
|--|---|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Conduct ASW attacks |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Conn ship using Underwater Fire Control Plot (UFCP) during ASW attacks • Conduct ASW attacks • Collect weapons firing data • Analyze ASW weapons firing data |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>XXX Class Combat Systems Doctrine (CNSL/CNSP INST C3516 SERIES)</i> • <i>XXX Class Tactical Manuals (NWP 3-20.6 SERIES)</i> • <i>Allied Submarine and Antisubmarine Exercise Manual (AXP 1(C))</i> • <i>System Manuals for Underwater Fire Control System MK 116 MOD (applicable) (ASWCS) (SW181-XX-XXX-XXX)</i> • <i>Surface Ship ASW System with Control Panel MK 309 (Code Ident 10001 OP 4407)</i> • <i>USW Surface Ship Attack and Evasion Manual (TM 3-21.2-98)</i> • <i>SH60B/LAMPS MK III Tactical Manual (NWP 3-22.5-SH60B)</i> |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about conning ship during ASW attacks, conducting ASW attacks, and ASW weapons firing data. |

Advancement Handbook for STG2

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Conduct torpedo evasion |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Recommend use of evasion tactics • Identify contact weapons and sensor capabilities |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>USW Surface Ship Attack and Evasion Manual</i> (TM 3-21.2-98) • <i>SH60B/LAMPS MK III Tactical Manual</i> (NWP 3-22.5-SH60B) • <i>Navy Antisubmarine Evasive Steering</i> (ATP 3(B)) • <i>In-Water Acoustic Characteristics of Russian Missiles, Countermeasures, and Torpedoes</i> (DST 1260S-084-XX) • <i>Foreign Submarine Data Handbook</i> (NWP 1-10.21) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about torpedo evasion maneuvers, evasion devices, and contact weapon and sensor capabilities. |

Advancement Handbook for STG2

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Use hydrographic charts |
| <i>Knowledge</i> you should have to perform this skill: | Interpret hydrographic charts |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <i>National Imagery and Mapping Agency Hydrographic Products (CATP2VO1U)</i> |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on the use of hydrographic charts. |

Advancement Handbook for STG2

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar System Maintenance |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Perform sonar self noise measurements and maintain desktop computers |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Take sonar noise recognition differential (NRD) measurements • Troubleshoot sonar desktop computers • Replace sonar desktop computer components |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • Planned Maintenance System (PMS) applicable MRC's • <i>Software Operators Manual for AN/UYQ-25(A)/25(B) SIMAS II</i> (SE394-CB-SOM-010/A10) • <i>XXX Class Ship Silencing Instruction</i> (CNSL/CNSP INST C9703) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about procedures for sonar noise recognition differential measurements and the repair of sonar desktop computers. |

Advancement Handbook for STG2

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar System Maintenance |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Maintain hydrophones and transducers |
| <i>Knowledge</i> you should have to perform this skill: | Replace hydrophones and transducers |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels</i> (S9165-AF-MMA-010/03481) • <i>Sonar Dome Rubber Window SDRW-1 (DDG-51 Class Vessels)</i> (S9165-AE-MMA-010) • <i>Sonar Dome Rubber Window SDRW-1 (DD 963, DDG-993, and CG-47 Class Vessels)</i> (S9165-AH-MMA-010) • Planned Maintenance System (PMS) applicable MRC's |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about hydrophone and transducer testing, calibration, and replacement. |

Advancement Handbook for STG2

| | |
|--|--|
| General STG <i>Skill Area</i> | Mechanical Systems |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Maintain sonar dome pressurization systems |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Test sonar dome pressurization systems • Conduct sonar dome air-water interchanges • Prepare sonar dome for entry • Clean and inspect sonar dome interiors • Clean and inspect sonar dome watertight doors • Lubricate and test sonar dome watertight doors |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels</i> (S9165-AF-MMA-010/03481) • <i>Sonar Dome Rubber Window SDRW-1 (DDG-51 Class Vessels)</i> (S9165-AE-MMA-010) • <i>Sonar Dome Rubber Window SDRW-1 (DD 963, DD993, and CG-47 Class Vessels)</i> (S9165-AH-MMA-010) • Planned Maintenance System (PMS) applicable MRC's |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on testing of pressurization systems (valves, gauges, filters, etc.), air-water interchange and sonar dome diving procedures. |

Advancement Handbook for STG2

| | |
|--|---|
| General STG <i>Skill Area</i> | Sonar Software Maintenance |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Maintain and operate digital data storage devices and tactical system hardware/software |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> Record data to and retrieve data from digital data storage devices Install and copy tactical system software |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> <i>System Operational and Maintenance Manuals for Sonar Detecting-Ranging Set AN/SQS-53B(V)</i> (SE 313-XX-XXX-XX(C)), Chs 1-3 <i>System Technical Manuals for Sonar Detecting Ranging Set AN/SQS-53C(V)</i> <i>Organizational Level Maintenance for Sonar Detecting Ranging Set AN/SQS-53D(V)</i> (SE 313-XX-XXX-XX(C)), Chs 1-3 <i>Operation/Maintenance Instructions for Sonar Set AN/SQS-56</i> (SE315-DT-MMO-010), Chs 1-3 <i>Sonar Signal Processing System AN/SQQ-28(V)</i>, (SE314-GV-MMA-010) Chs 1-3 <i>System Manuals for Sonar Receiving Set AN/SQR-19(V)</i>, (SE320-XX-XXX-XXX) Chs 1-3 <i>Sensors, Integrated AN/SQR-19B(V) and AN/SQQ-28(V) Operation and Maintenance Manuals</i> (SE394-AD-MMO-040) <i>System Manuals for Underwater Fire Control System MK116 MOD</i> (applicable) (ASWCS) (SW181-XX-XXX-XXX) <i>Operator's Manual for AN/UYQ-25A(V) Data Processing System</i> (SE394-C2-OPI-XX(SIMAS)) <i>Surface Ship ASW System with Control Panel MK 309</i> (Code Ident 10001 OP 4407) |

| | |
|---|--|
| <p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p> | <p>You can expect questions about digital data read/write procedures, tactical system software and hardware recoveries, initializations, and updating tactical systems software libraries.</p> |
|---|--|

Advancement Handbook for STG2

| | |
|--|---|
| General STG <i>Skill Area</i> | Sound Silencing |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Monitor and document self noise sources |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Identify and isolate sources of self noise • Inspect resilient mounts and ground straps • Document own ship radiated noise levels |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21-35) • <i>Standard Organization and Regulations Manual</i>, Ch 6 (OPNAVINST 3120) • <i>XXX Class Ship Silencing Instruction</i> (CNSL/CNSP INST C9703) • Planned Maintenance System (PMS) applicable MRC's |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on identifying self noise sources (tonal mapping, SSRNMs). |

Advancement Handbook for STG2

| | |
|--|---|
| General STG <i>Skill Area</i> | Weapons Systems |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Operate underwater fire control systems |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Make weapons selections • Preset shipboard torpedoes • Launch ASW weapons • Transfer weapons |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Surface Ship ASW System with Control Panel MK 309</i> (Code Ident 10001 OP 4407) • <i>System Manuals for Underwater Fire Control System MK 116 MOD</i> (applicable) (ASWCS) (SW181-XX-XXX-XXX) • <i>General Information Book for Torpedo MK 46 MOD 5</i> (SW515-A5-GIB-010) • <i>Lightweight Torpedo Shipboard Handling, Storage and Firing Procedures MK 50</i> (SW515-AO-PRO-040/MK50) • <i>XXX Class Combat Systems Doctrine</i> (CNSL/CNSP INST C3516 SERIES) • <i>XXX Class Tactical Manual</i> (NWP 3-20.6 SERIES) • <i>Ammunition Afloat</i> (NAVSEA OP 4) • <i>Firing Craft Procedures for Torpedo MK 46 MODs 1, 2, and 5</i> (Surface Vessel Torpedo Tubes) (SW515-AO-PRO 020) • <i>Approved Handling Equipment for Weapons and Explosives</i> (NAVSEA OP 2173, Vols 1&2) • Planned Maintenance System (PMS) applicable MRC's • <i>Technical Manuals for Strikedown Lift Systems DD963, DD 993, and CG Class</i> (SG420-AX-MMO-010) |

| | |
|--|---|
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on firing procedures, weapons selection criteria, and presetting of shipboard torpedoes. |
|--|---|

Part 3

Advancement Handbook for STG1

Advancement Handbook for STG1

| | |
|--|---|
| General STG <i>Skill Area</i> | Security |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Ship ACINT packages |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Prepare ACINT data for shipment • Packaging procedures |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>ACINT Collection Guide</i> (ONI-1259-001-00) • <i>Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume II</i> (SURTOPS VOL II) • <i>Integrated Undersea Surveillance System Operations</i> (NAVEDTRA 14309) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on proper ACINT data collection, formal data package construction, and packaging for shipment. |

Advancement Handbook for STG1

| | |
|--|--|
| General STG <i>Skill Area</i> | Mechanical Systems |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Monitor sonar dome evolutions |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Monitoring of sonar dome air-water interchanges • Sonar dome safety precautions |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels</i> (S9165-AF-MMA-010/03481) • <i>Sonar Dome Rubber Window SDRW-1 (DDG-51 Class Vessels)</i> (S9165-AE-MMA-010) • <i>Sonar Dome Rubber Window SDRW-1 (DD 963, DDG-993, and CG-47 Class Vessels)</i> (S9165-AH-MMA-010) • Planned Maintenance System (PMS) applicable MRC's |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about sonar dome air-water interchange procedures. |

Advancement Handbook for STG1

| | |
|--|--|
| General STG <i>Skill Area</i> | Sound Silencing |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Monitor and maintain own ship's Quiet Ship Bill |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Review and monitor ship's Quiet Ship Bill • Update ship's Quiet Ship Bill |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21.35) • <i>Standard Organization and Regulations Manual</i>, Ch 6 (OPNAVINST 3120) • <i>XXX Class Ship Silencing Instruction</i> (CNSL/CNSP INST C9703) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about implementing, updating, and monitoring own ship's Quiet Ship Bill. |

Advancement Handbook for STG1

| | |
|--|---|
| General STG <i>Skill Area</i> | Technical Administration |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Prepare sonar search plans |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Prepare sonar search plans • Update sonar search plans |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • Applicable ships AN/SQQ-89(V) Operating Guidelines • <i>Allied Maritime Tactical Instructions and Procedures (ATP1 Vol 1)</i> • <i>Allied Antisubmarine Warfare Manual ATP 28 (A)</i> • <i>XXX Class Combat Systems Doctrine (CNSL/CNSP INST C3516 SERIES)</i> |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on preparing search plans, to include considerations, and forms or worksheets. Also, questions will be asked about updating sonar search plans. |

Advancement Handbook for STG1

| | |
|--|--|
| General STG <i>Skill Area</i> | Technical Administration |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Maintain logs |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Update Combat Systems Smooth Logs • Update Sonar Dome Dive Logs |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels</i> (S9165-AF-MMA-010/03481) • <i>Sonar Dome Rubber Window SDRW-1 (DDG-51 Class Vessels)</i> (S9165-AE-MMA-010) • <i>Sonar Dome Rubber Window SDRW-1 (DD 963, DDG-993, and CG-47 Class Vessels)</i> (S9165-AH-MMA-010) • Planned Maintenance System (PMS) applicable MRC's • <i>Combat Systems Improvement Plan</i> COMNAVSURFLANT CSIP 52B |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about sonar dome dive logs, dome dive qualifications, and safety requirements. Also, you will be asked questions on the Combat Systems Smooth Log (contents, requirements, etc.). |

Advancement Handbook for STG1

| | |
|--|--|
| General STG <i>Skill Area</i> | Technical Administration |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Supervise personnel in all aspects of IUSS Quality Assurance functions |
| <i>Knowledge</i> you should have to perform this skill: | Supervise Integrated Undersea Surveillance System (IUSS) Quality Assurance (QA) Program |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume II</i> (SURTOPS VOL II) • <i>Integrated Undersea Surveillance System Operations</i> (NAVEDTRA 14309) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about QA organization, responsibilities, and procedures. You can also expect questions about QA generated products, such as data packages, station gram libraries, and Measures of Performance (MOP) |

Advancement Handbook for STG1

| | |
|--|---|
| General STG <i>Skill Area</i> | Technical Administration |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Implement IUSS training programs |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Develop Surveillance Training and Operating Procedures (SURTOPS) Training Program • Update Surveillance Training and Operating Procedures (SURTOPS) Training Program |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Administrative Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume I (SURTOPS VOL I)</i> • <i>Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume II (SURTOPS VOL II)</i> • <i>Integrated Undersea Surveillance System (IUSS) Job Qualification Standards (JQR) SURTOPS Manual, Volume IV (SURTOPS VOL IV)</i> • <i>Integrated Undersea Surveillance System Operations (NAVEDTRA 14309)</i> |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about developing, monitoring, and updating training programs. You can also expect questions about IUSS qualification procedures. |

Part 4

Advancement Handbook for STGC

Advancement Handbook for STGC

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Perform coordinated ASW operations |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Coordinated ASW operations • Battle group operations • Compute contact intercept courses • Recommend torpedo evasive maneuvers |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Coordinated Submarine/ Task Group Operations Manual</i> (NWP 3-21.0) • <i>Allied Maritime Tactical Instructions and Procedures</i> (ATP 1 Vol 1; Ch 9) • Navy-wide OPTASK USW, parts I&II • <i>Allied Antisubmarine Warfare Manual</i> (ATP 28(A)) • <i>Tactical Use of the Ocean Environment</i> (NWP 3-59.1) • <i>USW Surface Ship Attack and Evasion Manual</i> (TM 3-21.2-98) • <i>SH60B/LAMPS MK III Tactical Manual</i> (NWP 3-22.5-SH60B) • <i>Navy Antisubmarine Evasive Steering</i> (ATP 3(B)) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about employment of ASW units, contact prosecution, and Master Fusion Plots / Water Space Management (WSM). |

Advancement Handbook for STGC

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Draft and interpret operational and tactical messages |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Draft tactical messages • Update tactical messages • Interpret information from tactical messages • Review operational messages |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Allied Structured Messages (APP-4)</i> • <i>Allied Submarine and Antisubmarine Exercise Manual (AXP 1(C))</i> • <i>Antisubmarine Warfare Exercises (FXP 1)</i> • <i>Maritime Reporting Procedures (NWP 1-03.41)</i> • <i>Integrated Undersea Surveillance System Coordination Procedures (NWP 3-55.32.1)</i> • <i>Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume II (SURTOPS VOL II)</i> • <i>Naval Telecommunications Procedures (NTP-3)</i> • <i>USMTF User Formats Electronic Documentation System (OPNAV-P-942-1-86)</i> • <i>Operational Specification for Over-the-Horizon Targeting Gold (OS-OTG)</i> • <i>Integrated Undersea Surveillance System Operations (NAVEDTRA 14309)</i> |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on drafting and interpreting tactical/operational messages. |

Advancement Handbook for STGC

| | |
|--|--|
| General STG <i>Skill Area</i> | Sonar Operations |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Perform evaluation of exercises |
| <i>Knowledge</i> you should have to perform this skill: | Evaluate exercise/event data |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Allied Structured Messages (APP-4)</i> • <i>Allied Submarine and Antisubmarine Exercise Manual (AXP 1(C))</i> • <i>Antisubmarine Warfare Exercises (FXP 1)</i> • <i>Maritime Reporting Procedures (NWP 1-03.41)</i> • <i>Integrated Undersea Surveillance System Coordination Procedures (NWP 3-55.32.1)</i> • <i>Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual Volume II (SURTOPS VOL II)</i> • <i>Naval Telecommunications Procedures (NTP-3)</i> • <i>Integrated Undersea Surveillance System Operations (NAVEDTRA 14309)</i> |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on exercise generation and grading both friendly and allied exercises. |

Advancement Handbook for STGC

| | |
|--|--|
| General STG <i>Skill Area</i> | Mechanical Systems |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Supervise sonar dome evolutions |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Coordinate sonar dome entry evolutions • Supervise sonar dome entry |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels</i> (S9165-AF-MMA-010/03481) • <i>Sonar Dome Rubber Window SDRW-1 (DDG-51 Class Vessels)</i> (S9165-AE-MMA-010) • <i>Sonar Dome Rubber Window SDRW-1 (DD 963, DDG-993, and CG-47 Class Vessels)</i> (S9165-AH-MMA-010) • Planned Maintenance System (PMS) applicable MRC's |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on the operation of the sonar dome, air/water pressurization subsystems, alarms, and safety precautions to be observed during dome diving operations. |

Advancement Handbook for STGC

| | |
|--|--|
| General STG <i>Skill Area</i> | Technical Administration |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Monitor own ship's radiated noise and equipment lineup library |
| <i>Knowledge</i> you should have to perform this skill: | Review own ship's acoustic trial reports |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Surface Ship Active and Passive Sonar Systems and Tactics</i> (NWP 3-21-35) • <i>Standard Organization and Regulations Manual</i>, Ch 6 (OPNAVINST 3120) • <i>XXX Class Ship Silencing Instruction</i> (CNSL/CNSP INST C9703) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions on maintaining and utilizing own ship's acoustic trial reports (SSRNM, tonal mapping). |

Advancement Handbook for STGC

| General STG <i>Skill Area</i> | Technical Administration |
|--|--|
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Supervise torpedo firings and make required reports |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Weapon characteristics • Preparation of weapons firing reports • Safety procedures |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Firing Craft Procedures for Torpedo MK 46 MODs 1, 2, and 5 (Surface Vessel Torpedo Tubes)</i> (SW515-AO-PRO 020) • <i>General Information Book for Torpedo MK 46 MOD 5</i> (SW515-A5-GIB-010) • <i>Lightweight Torpedo Firing Report Procedures</i> PEO(USW) INST 8515.1 • <i>Torpedo MK 46 Firing Reporting System</i> (NAVSEAINST 8515.1) • <i>Lightweight Torpedo Fleet Peacetime Firing Policy</i> (OPNAVINST C8510.12) • <i>Localization and Recovery of Lightweight Torpedoes MK 46 Torpedo/MK46 REXTORP</i> (SW515-AO-PRO-010/MK46) • <i>Antisubmarine Warfare Exercises (FXP-1)</i> |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about torpedo firing procedures, weapon characteristics (ranges, modes), and recommendations. Also, you will be asked questions on firing reports and safety requirements. |

Advancement Handbook for STGC

| | |
|--|---|
| General STG <i>Skill Area</i> | Weapons Systems |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Supervise weapons on/off load operations |
| <i>Knowledge</i> you should have to perform this skill: | <ul style="list-style-type: none"> • Weapons handling requirements • Receipt and transfer inspections • Safety requirements |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Firing Craft Procedures for Torpedo MK 46 MODs 1, 2, and 5 (Surface Vessel Torpedo Tubes)</i> (SW515-AO-PRO 020) • <i>Ammunition Afloat</i> (NAVSEA OP4) • <i>Strikedown Lift Systems DD963, DD993, and CG Class</i> (SG-420-AX-MMO-010) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about handling requirements for weapons receipt inport and at sea; weapons transfers, including conducting acceptance inspections; and all safety procedures (OTTO Fuel II). |

Advancement Handbook for STGC

| | |
|--|--|
| General STG <i>Skill Area</i> | Technical Administration |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Coordinate personnel and activities that comprise the command IUSS Quality Assurance program |
| <i>Knowledge</i> you should have to perform this skill: | Coordinate Integrated Undersea Surveillance System (IUSS) Quality Assurance (QA) Program |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume II</i> (SURTOPS VOL II) • <i>Integrated Undersea Surveillance System Operations</i> (NAVEDTRA 14309) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about QA organization, responsibilities, and procedures. You can also expect questions about QA generated products, such as data packages, station gram libraries, and Measures of Performance (MOP). |

Advancement Handbook for STGC

| | |
|--|---|
| General STG <i>Skill Area</i> | Technical Administration |
| A <i>skill</i> you are expected to perform from the General Skill Area above: | Coordinate personnel and activities involved in IUSS training programs |
| <i>Knowledge</i> you should have to perform this skill: | Coordinate Surveillance Training and Operating Procedures (SURTOPS) training program |
| <i>References</i> you should study to gain the knowledge you need to perform this skill: | <ul style="list-style-type: none"> • <i>Administrative Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume I</i> (SURTOPS VOL I) • <i>Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume II</i> (SURTOPS VOL II) • <i>Integrated Undersea Surveillance System (IUSS) Job Qualification Standards (JQR) SURTOPS Manual, Volume IV</i> (SURTOPS VOL IV) • <i>Integrated Undersea Surveillance System Operations</i> (NAVEDTRA 14309) |
| <i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly: | You can expect questions about developing, monitoring, and updating training programs. You can also expect questions about IUSS qualification procedures. |

Appendix 1

References Used in This Advancement Handbook

| Short Title | Long Title | Stocking Point |
|--------------------------|---|------------------|
| APP 4 | Allied Structured Messages | Note 1 |
| ATP 1, Vol 1 | Allied Maritime Tactical Instructions and Procedures | Note 1 |
| ATP 3(B) | Navy Antisubmarine Evasive Steering | Note 1 |
| ATP 28(A) | Allied Antisubmarine Warfare Manual | Note 1 |
| AXP 1(C) | Allied Submarine and Antisubmarine Exercise Manual | Note 1 |
| CATP2V01U | National Imagery and Mapping Agency Hydrographic Products | Note 10 |
| CNMOC 3167/2 | Bathymograph Log | Note 1 |
| CNSL/CNSP INST C3516 | XXX Class Combat Systems Doctrine | Note 5 |
| CNSL/CNSP INST C9703 | Applicable Ship Class Silencing Instructions | Note 5 |
| CODE IDENT 10001 OP 4407 | Surface Ship ASW System with Control Panel MK 309 | Note 1 |
| COMNAVSURFLANT CSIP 52B | Combat Systems Improvement Plan | Note 5 |
| CSOSS | Combat Systems Operational Sequencing System Manuals | Note 9 |
| DST 1220S-092-XX | Acoustic Characteristics of Diesel Submarines (Less Russia) | Notes 4 & 15 |
| DST 1220S-461-XX | Acoustic Characteristics of Russian Type 2 and Type 3 Nuclear Submarines | Note 4 |
| DST 1220S-465-XX | Acoustic Characteristics of Russian Type 6 and Type 7 Nuclear Submarines | Note 4 |
| DST 1220S-646-XX | Acoustic Characteristics of Russian Type 1 Through Type 4 Diesel Submarines | Note 4 |
| DST 1260S-084-XX | In-Water Acoustic Characteristics of Russian Missiles, Countermeasures, and Torpedoes | Note 4 |
| FXP-1 | Antisubmarine Warfare Exercises | Notes 1, 8, & 14 |
| MZ-6050-1-95 | Mine-Like Object Detection and Avoidance | Note 8 |
| NAVAIR 28-SSQ-500-1 | Technical Manual Sonobuoys | Note 1 |
| NAVEDTRA 14309 | Integrated Undersea Surveillance System Operations | Note 20 |

| | | |
|--|---|------------------|
| NAVEDTRA 14173-14181, 14184-14188, 14191-14196 | Navy Electricity and Electronics Training Series MODS 1-9, 12-16, 19-24 | Notes 3 & 19 |
| NAVMETOC COMINST 3140.1 | United States Navy Meteorological and Oceanographic Support System Manual | Note 7 |
| NAVSEAINST 8515.1 | Torpedo MK 46 Firing Reporting System | Note 1 |
| NAVSEA OP 2173 VOLS 1&2 | Approved Handling Equipment for Weapons and Explosives | Note 1 |
| NAVSEA OP 4 | Ammunition Afloat | Note 1 |
| NAVSEA S8000-AD-MMO-010/A10 | AN/SQQ-89(V)-T() On-Board Trainer (OBT) | Note 1 |
| NAVSEA 0967-LP-490-1640 | Sonar Communications Set AN/WQC-2/2A | Note 1 |
| NAVSUP PUB 485 | Afloat Supply Procedures | Note 1 |
| NTP-3 | Naval Telecommunications Procedures | Note 13 |
| NV PUB 217 | Maneuvering Board Manual | Note 10 |
| NWP 1-03.41 | Maritime Reporting Procedures | Notes 1, 8, & 14 |
| NWP 1-10.2 Vol 1 (REV A) | Principles of LOFAR Gram Analysis | Notes 1, 8, & 14 |
| NWP 1-10.2 Vol 2 (REV A) | Principles of LOFAR Gram Analysis | Notes 1, 8, & 14 |
| NWP 1-10.21 | Foreign Submarine Data Handbook | Notes 1, 8, & 14 |
| NWP 1-10.22 | Passive Acoustic Classification Reference Manual | Notes 1, 8, & 14 |
| NWP 1-10.26 | Signature Catalog: CIS Diesel and Nuclear Submarines | Notes 1, 8, & 14 |
| NWP 1-10.27 | U.S. Nuclear Submarine Data Handbook | Notes 1, 8, & 14 |
| NWP 3-20.6 | XXX Class Tactical Manuals | Notes 1, 8, & 14 |
| NWP 3-21.0 | Coordinated Submarine / Task Group Operations Manual | Notes 1, 8, & 14 |
| NWP 3-21.3 | Surface Ship Antisubmarine Warfare (ASW) Principles | Notes 1, 8, & 14 |
| NWP 3-21.34 | Surface Ship Acoustic Prediction Systems and Tactics | Notes 1, 8, & 14 |
| NWP 3-21.35 | Surface Ship Active and Passive Sonar Systems and Tactics | Notes 1, 8, & 14 |
| NWP 3-21.51.1 | Target Motion Analysis (TMA) Techniques | Notes 1, 8, & 14 |
| NWP 3-21.51.3 (REV A) | Surface Ship Passive Localization and Target Motion Analysis | Notes 1, 8, & 14 |

| | | |
|------------------------------|---|------------------|
| NWP 3-22.5-SH60B | SH60B / LAMPS MK III Tactical Manual | Notes 1, 8, & 14 |
| NWP 3-55.32.1 | Integrated Undersea Surveillance System Coordination Procedures | Notes 1, 8, & 14 |
| NWP 3-59.1 | Tactical Use of the Ocean Environment | Notes 1, 8, & 14 |
| ONI COMP #1-95 | Compendium of Undersea Warfare Intelligence Products | Note 11 |
| ONI-1259-001-00 (CD) | ACINT Collection Guide | Notes 11 & 15 |
| ONI-1259-050-98 | Acoustic Characteristics of Russian Surface Ships | Notes 4 & 15 |
| OPNAV 3100/13 | Sonar Contact Log | Note 1 |
| OPNAV 3100/905 | Passive Narrowband Log | Note 1 |
| OPNAV-P-942-1-86 | USMTF User Formats Electronic Documentation System | Note 17 |
| OPNAVINST C8510.12 | Lightweight Torpedo Fleet Peacetime Firing Policy | Note 1 |
| OPNAVINST 3120 | Standard Organization and Regulations Manual | Note 6 |
| OPNAVINST 5100.23 | Navy Occupational Safety and Health Program Manual | Note 6 |
| OS-OTG | Operational Specification for Over-The-Horizon Targeting GOLD | Note 17 |
| PEO(USW) INST 8515.1 | Lightweight Torpedo Firing Report Procedures | Note 12 |
| RP 33 | Fleet Oceanographic and Acoustic Reference Manual | Note 7 |
| S9165-AF-MMA-010/03481 | AN/SQS-56 Sonar Rubber Dome for FFG-7 Class Vessels | Note 1 |
| S9165-AH-MMA-010 | Sonar Dome Rubber Window SDRW-1 (DD-963, DDG-993, and CG-47 Class Vessels) | Note 1 |
| S9165-AE-MMA-010 | Sonar Dome Rubber Window SDRW-1 (DDG-51 Class Vessels) | Note 1 |
| S9536-AF-AEG-010/HD-1074/SQS | Aegis Electronic Equipment Water Cooler HD 1074/SQS (S9536-AF-AEG-010/HD-1074/SQS) | Note 1 |
| SE313-XX-XXX-XX(C) | System Operational and Maintenance Manuals for Sonar Detecting Ranging Set AN/SQS-53 (ALL), Chs 1-4 | Note 1 |
| SE314-GV-MMA-010 | General Information and Operation Instructions for AN/SQQ-28(V) | Note 1 |
| SE314-GV-MMM-010 | Signal Data Recorder Reproducer Set AN/USH-32(V) | Note 1 |

| | | |
|-----------------------------|--|---------------|
| SE315-DT-MMO-010 | Operation/Maintenance Instructions for Sonar Set AN/SQS-56 | Note 1 |
| SE320-XX-XXX-XXX | System Manuals for Sonar Receiving Set AN/SQR-19 (ALL) | Note 1 |
| SE343-FO-MMO-010/C | Sonar Communications Sets AN/WQC-6(EC-1) and AN/WQC-6 | Note 1 |
| SE362-DO-MMM-010 | Sonar Sounding Set AN/UQN-4/4A Fathometer | Note 1 |
| SE365-AA-MMM-010 | Bathymograph Set AN/SSQ-(56, 56A, 60, 61, and 61A) | Note 1 |
| SE365-BA-MMO-010 /BQH-7A | Bathymograph/ Sound Velocimeter AN/BQH-7A | Note 1 |
| SE376-HA-MMA-010/020/030 | Torpedo Countermeasures Transmitting Set AN/SLQ-25A | Note 1 |
| SE376-HO-MMA-010/C | Torpedo Countermeasures Transmitting Set AN/SLQ-25 | Note 1 |
| SE394-CB-SOM-010 | Software Operators Manual, AN/UYQ-25B(V)1 | Note 1 |
| SE394-CB-SOM-A10 | Software Operators Manual, AN/UYQ-25B(V)1 SIMAS II | Note 1 |
| SE394-C2-OPI-XX(SIMAS) | Operator's Manual for AN/UYQ-25A(V) Data Processing System | Note 1 |
| SE394-AD-MMA-030/ SQQ-89(V) | System Technical Manual for AN/SQQ-89(V) Surface Antisubmarine Warfare Combat System | Note 1 |
| SE641-AE-MMO-010 | Digital Magnetic Tape Recorder Reproducer Set RD-358A(V) | Note 1 |
| SG420-AX-MMO-010 | Strikedown Lift System for DD963, DD993, and CG Class | Note 1 |
| SG813-CL-MMO-010/020 | Towed Array Handling and Stowage Group OK-410(V) | Note 1 |
| SURTOPS VOL I | Administrative Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume I | Notes 16 & 18 |
| SURTOPS VOL II | Operating Procedures for the Integrated Undersea Surveillance System SURTOPS Manual, Volume II | Notes 16 & 18 |
| SURTOPS VOL IV | Integrated Undersea Surveillance System (IUSS) Job Qualification Standards (JQR) SURTOPS Manual, Volume IV | Notes 16 & 18 |
| SW181-XX-XXX-XXX | System Manuals for Underwater Fire Control System MK 116 MOD (ALL) (ASWCS), Chs 1-3 | Note 1 |

| | | |
|-----------------------------|--|--------|
| SW515-AO-PRO-010/MK46 | Localization and Recovery of Lightweight Torpedoes MK 46/ MK 46 REXTORP | Note 1 |
| SW515-AO-PRO-020 | Firing Craft Procedures for Torpedo MK 46 MODs 1, 2, and 5 (Surface Vessel Torpedo Tubes) | Note 1 |
| SW515-AO-PRO-40/MK 50 | Lightweight Torpedo Shipboard Handling, Storage and Firing Procedures | Note 1 |
| SW515-A5-GIB-010 | General Information Book for Torpedo MK 46 MOD 5 | Note 1 |
| SW581-A5-OPI-010/ MK38-5 | Mobile Target MK 38 MOD 5 | Note 1 |
| SW581-DO-PRO-010/ EMATT | Expendable Mobile ASW Training Target (EMATT) MK 39 MOD 0 | Note 1 |
| TM 3-21.2-98 | USW Surface Ship Attack and Evasion Manual | Note 8 |
| VARIOUS | Operating Guidelines for AN/SQS-53 (ALL) | Note 2 |
| VARIOUS | Operating Guidelines for AN/SQR-19 (ALL) | Note 2 |
| VARIOUS | Operating Guidelines for AN/SQQ-28 (ALL) | Note 2 |
| VARIOUS | Operating Guidelines for AN/UYQ-25 (ALL) | Note 2 |
| VARIOUS | Operating Guidelines for AN/SQQ-89(V) (ALL), Command Considerations and Sonar Supervisor Manuals | Note 2 |

LEGEND:

Note 1 —To order obtain Stk. No. from NAVSUP 2002, then MILSTRIP to NAVICP PHILA or (if unclass) via INTERNET <http://www.nll.navsup.navy.mil>

Note 2 —Commander, Naval Undersea Warfare Center
Code 3133 Bldg. 1320
1176 Howell Street
Newport, R.I. 02841-1708

Note 3 —To view or download, obtain instructions from NAVEDTRA 12061 via INTERNET <http://www.advancement.cnet.navy.mil>
To enroll via INTERNET www.courses.cnet.navy.mil or call toll free (877) 264-8583

Note 4 —Defense Intelligence Agency
Customer Service Desk
Bolling AFB
Washington, DC 20340-5100
DSN: 428-4319

Note 5 —Ltr request to : Commander
Naval Surface Forces U.S. Atlantic Fleet
ATTN: Code N002A2
1430 Mitscher Ave
Norfolk, VA. 23551-2494

Note 6 —INTERNET <http://neds.nebt.daps.mil/>

Note 7 —Commanding Officer
Naval Oceanographic Office
Stennis Space Center, MS 39522-5001

Note 8 —NTIC Series A/B (CD-ROM) (See your command NWP Custodian)

Note 9 —These pubs are furnished to the ships who have CSOSS installed onboard. Those who are not CSOSS will refer to the System Operational Manuals for that class ship.

Note 10—National Imagery and Mapping Agency (NIMA)

Note 11—Office of Naval Intelligence
4251 Suitland Rd
Washington, DC

Note 12—Naval Undersea Warfare Center Division
610 Dowell St.
Attn: Code 32 Lightweight Torpedo Information Desk
Keyport, WA 98345-7610

Note 13—Point-of-Contact: Downloaded from COMNAVCOMTELCOM's Bulletin Board Service (BBS) ; ALCOM 020/96 refers. If document is classified, refer to note 1

Note 14—Can be viewed on-line or downloaded from <http://www.nwdc.navy.smil.mil>

Note 15—Can be viewed on-line at
<http://www.nmic.navy.smil.mil/onihome/index.html>

Note 16—Can be viewed on-line or ordered from <http://www.cus.navy.smil.mil>

Note 17—53690 Tomahawk Dr., Suite A125
San Diego, CA 92147-5082
(619)553-7309, DSN 553-7309

Note 18—Commander Undersea Surveillance
373 Bullpup St.
Virginia Beach, VA 23461-2198
1-800-335-7259 ext. 178

Note 19—These are not new or revised courses. The NAVEDTRA Course Numbers were changed ONLY to facilitate central enrollment.

Note 20—To obtain this NRTC you must enroll in the course. There are two ways to enroll: (1) Naval Message or (2) Official Command Letter. Contact your ESO or see the NETPDTC web site <http://www.advancement.cnet.navy.mil> for the minimum required information to enroll in this classified NRTC.